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IP Softphone 2050 Installation Guide

Business Communications Manager

BCM50 2.0

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NORTEL

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Chapter 1
Getting started with the IP Softphone 2050

This guide describes how to install the Nortel IP Softphone 2050. Review this guide before installing, upgrading, or modifying the IP Softphone 2050.

This guide also contains information regarding the Nortel USB Audio Kit.

This guide is intended for the person installing the IP Softphone 2050 and assumes that the Communications Server is installed and initialized.

Symbols used in this guide

This guide uses these symbols to draw your attention to important information:

Caution: Caution Symbol
Alerts you to conditions where you can damage the equipment.

Warning: Warning Symbol
Alerts you to conditions where you can cause the system to fail or work improperly.

Note: Note/Tip symbol
Alerts you to important information.

Acronyms

This guide uses the following acronyms:

ACD	Automatic Call Distribution
DHCP	Dynamic Host Control Protocol
DNS	Domain Name Service
IP	Internet Protocol
LAN	Local Area Network
NIC	Network Interface Card
QoS	Quality of Service
TPS	Terminal Proxy Server
USB	Universal Serial Bus
WAN	Wide Area Network

Related publications

The *Telephony Device Installation Guide (NN40020-309)* provides additional information about configuring and using IP telephones.

After you have successfully installed the IP Softphone 2050, you can access the IP Softphone 2050 help system. This help system describes how to use and configure the IP Softphone 2050.

The *IP Softphone 2050 User Guide (NN40050-100)* also describes further use of the IP Softphone 2050.

How to get help

This section explains how to get help for Nortel products and services.

Getting Help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

http://www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. More specifically, the site enables you to:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting Help over the phone from a Nortel Solutions Center

If you don't find the information you require on the Nortel Technical Support Web site, and have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the phone number for your region:

http://www.nortel.com/callus

Getting Help from a specialist by using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

http://www.nortel.com/erc

Getting Help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

Chapter 2
Introduction

The IP Softphone 2050 is a Voice over IP application that enables users to communicate over the LAN and WAN from their computers. This product combines the classic telephony services of Nortel IP communications servers with computer-resident directory capabilities.

The IP Softphone 2050 presents the following benefits:

- offers the rich set of telephony services of Nortel IP communications servers such as Meridian 1, CSE 1000, Business Communications Manager, Centrex, and SL-100.
- offers the “universality” of a Windows-based application
- encapsulates the operation of the IP 2004, providing all IP 2004 functionality in a familiar interface wrapper. As per the IP 2004, the IP Softphone 2050 provides:
  - — Quality of Service (QoS) and authentication
  - — automatic detection of call server location using DHCP
  - — features and services are provided by the network (such as call features, calling line identification, and voice mail)
- reduces the set of wires required to the desktop by eliminating the need for separate computer and telephone wires
- presents an intuitive, flexible interface including:
  - — slide-out trays that provide access to frequently used features and services
  - — retracted trays that provide a smaller interface with full operational capabilities for a single line
  - — viewable line status
  - — ten item lists for quick dial and call log access from both the main and system tray interface
  - — customizable interface and directories
  - — multilingual interface
  - — programmable macro functions for programming lengthy dialing patterns
  - — hotkeys that map the computer keyboard to application buttons
- can be operated from the Windows system tray, allowing the user to take and place calls without interrupting other work
- includes a directory application that provides “one-click” direct dialing, access to a variety of directory types, quick dial lists, and incoming and outgoing call logs
- interfaces with TAPI applications such as Outlook and ACT!
- provides immediate answers to user questions through online help
- provides USB Audio Kit that has a controlled high quality audio environment. This adapter provides:
  - — provides predictable, absolute audio levels
  - — uses standard Windows drivers

  - — requires no additional software or drivers
  - — provides in-use lamp connector
- provides user selectable ringing device to alert the user to incoming calls through speakers when the headset is not being worn
- supports G.723, G.729 and G.711 codecs for a operation at a variety of network connection speeds

The intuitiveness of the IP Softphone 2050 interface is based on its similarity and compatibility with the ergonomics of the IP 2004 Internet Telephone and Windows-based applications. Training investment with the IP 2004 and network applications presented using the IP 2004 are directly portable to IP Softphone 2050 use.

Moreover, the IP Softphone 2050 allows users to customize the interface to their own preferences for:

- volume of speaker and microphone
- type of “receiver and speaker” (handset, headset, or hands-free communication)
- language of interface
- ringer device

The IP Softphone 2050 presents clearly identified windows to allow users to:

- manage one or more communications in progress
- access local or remote corporate directories
- track and manage records of incoming and outgoing calls
- access network resident services provided by the call server, such as voice mail

Chapter 3
Installing the IP Softphone 2050

This section describes how to install the Nortel IP Softphone 2050 and the Nortel USB Audio Kit.

Hardware and software requirements

Minimum PC requirements

- Pentium Pro 200 MHz
- 128 MB memory (for Windows 2000)
- 64 MB memory (for Windows 98)
- 55 MB free hard-drive space (all languages)
- USB port
- Monitor settings: 16 bit High Color; 800x600 resolution or higher

Supported Operating Systems

- Windows 2000 Professional
- Windows 2000 Professional Service Pack 1
- Windows 2000 Professional Service Pack 2
- Windows XP (Home and Professional version)

Note: You must have administrator privileges to install the IP Softphone 2050 on Windows 2000.

Windows 2000 Power Users can install the IP Softphone 2050 if they are granted rights to install with elevated privileges by a Windows 2000 administrator.
For information on how to assign elevated privileges to Power Users for installation, refer to your Windows 2000 documentation.

USB Audio Kit

Operation of the IP Softphone 2050 requires the use of the Nortel USB Audio Kit. The USB Audio Kit provides a high quality predictable audio interface that is highly optimized for telephony applications. The USB Audio kit allows the IP Softphone 2050 to have an absolute and predictable loss and level plan implementation, which is necessary to meet TIA-810, FCC part 68 and its international equivalents as well as the ADA requirements for the hearing impaired. With the USB Audio kit, the IP Softphone 2050 can achieve performance rivaling or surpassing that of hardware telephones.

The USB Audio Kit is fully-compliant with version 1.1 of the USB Device Specification and Windows Plug & Play specifications. It is fully compatible with the suspend and resume functions for effective use in battery operated laptops. It is functional on Windows 2000 Professional, Windows 98, Windows 98 Second Edition, Windows Millennium and Windows XP. No drivers or software are required for installation.

In the box

- USB Headset Adapter
- Installation Guide (English and French)
- USB cord
- Telephony grade mon-aural headset
- Lower cordset with quick disconnect

Connectors

- RJ-9 headset/handset jack or mini jack (depending on model)
- Accessory jack for “in-use” lamp (not on all models)
- USB device jack

Specifications

- **Native Audio format**: 16 bit linear 8 KHz over USB, limited to 8 bit PCM logarithmic coding in hardware
- **OS Compatibility**: Windows 2000, Windows ME, Windows XP
- **Power Source**: USB power provided from computer
- **Enumeration**: Enumerates as USB Composite Device and USB Audio Device
- **Channels**: Mandatory control channel for enumeration, Bi-directional isochronous channel for audio
- **Electret Microphone Bias**: 3 V
- **Maximum SPL Protection**: Limited in headset
- **In-Use Lamp Connector**: Isolated contact closure - polarity insensitive

Installing the USB Audio Headset

To install the USB Audio Headset

1. If you have a two-piece headset cord, connect the coiled lower cord to the headset cord with the Quick Disconnect connector. Ensure the Quick Disconnect is securely fastened.
   If you have a one-piece headset cord, go to the next step.
2. Connect the headset cord to the RJ9 jack, or mini jack, on the adaptor.
3. Connect the USB cable to the headset adaptor and to one of the USB jacks on the back of your PC or USB hub.
4. The first time the headset adapter is plugged in, there is a delay while the Windows operating system configures the device and locates appropriate driver software. During the installation you can be prompted to supply the original Windows CD ROM so that the Windows operating system can locate drivers.
5. After you have installed the USB headset adapter, you must use the IP Softphone 2050 Configuration Utility to select ‘USB Audio Device’.

USB FAQ

- My computer doesn't have USB, can I use an add-on USB card?

  The computer must have a USB connector. The USB Headset has not been tested on USB add on or upgrade cards. Performance or operation is not guaranteed of these cards.

- I don't have enough USB ports available, can I use a USB hub?

  The USB Headset has been tested successfully behind a variety of USB hubs. It is not practical to test on all, but no issues have been uncovered on the ones that have been tested. For best results, use powered hubs.

Optional In-Use indicator (not provided with kit)

A 2.5mm output jack is provided next to the USB connector for activation of a visual in-use indicator such as the 1127P Desktop Visual Alerter (Algo Communication Products Ltd)

Note: Not all models of the USB Headset Adapter have the In-Use Indicator output jack.

Installing the IP Softphone 2050

Note: If you have previously installed a version of the IP Softphone 2050, you must uninstall the old version (through Add/Remove Programs) before installing this version.

Note: Install the Nortel USB Audio Kit before installing the IP Softphone 2050. By doing this, you are presented with the option of using the USB Audio Device during installation of the IP Softphone 2050.

- The IP Softphone 2050 can be installed running the installation wizard from the IP Softphone 2050 CD.

To install using the IP Softphone 2050 CD

1. Exit any programs that are running.
2. Disable any anti-virus programs that are running.
3. Insert the IP Softphone 2050 CD into the CD-ROM drive of your computer.
   If the install wizard starts, go to step 6. If the install wizard does not start, go to step 4.
4. Double-click the **My Computer** icon, and then double-click the **CD** icon.
5. Double-click the **Setup** icon.
6. Follow the instructions on the display to complete the installation.
7. Run the **IP Softphone 2050 Configuration Tool** to assign a server address and to configure audio peripherals.

You can access the IP Softphone 2050 from the Start menu at **Start > Programs > Nortel > IP Softphone 2050**.

You can access the **IP Softphone 2050 Configuration Tool** from the Windows Control Panel.

Note: The installation files for the IP Softphone 2050 are not deleted by the installation wizard. These files are stored in a folder named C:\Program Files\Nortel\ClientInstall\IP Softphone 2050.

You can delete the installation files as they are not needed by the IP Softphone 2050.

Additional installation steps for Windows 2000

If you are installing the IP Softphone 2050 on a computer using Windows 2000, you must:

- install the Windows QoS Packet Scheduler
- install the Nortel i2050 QoS Service

The Windows QoS Packet Scheduler and the Nortel i2050 QoS Server enable 802.1p Quality of Service (QoS) on the computer.

Note: You must have administrator privileges to install the QoS Packet Scheduler.

Note: Administrator privileges are required to install the Nortel IP Softphone 2050 QoS Service.

If you have administrator privileges, the Nortel IP Softphone 2050 QoS Service is installed as part of the IP Softphone 2050 installation.

If you do not have administrator privileges, then an administrator must install the Nortel IP Softphone 2050 QoS Service for you, using a separate installation. The administrator must install the Nortel IP Softphone 2050 QoS Service after both the Windows QoS Packet Scheduler and the IP Softphone 2050 are installed.

To install the QoS Packet Scheduler

1. In the Windows Control Panel, click **Network and Dialup Connections**.
2. Right-click the Local Area Connection for the device to be used, and click **Properties**.
3. Click **Install**.
4. On the Select Network Component Type screen, click **Service,** and then click **Add**.
5. On the Select Network Service screen, click **QoS Packet Scheduler,** and then click **OK**. You may require the Windows 2000 CD-ROM if the program can not find required files on your computer.

To install the Nortel IP Softphone 2050 QoS Service using the IP Softphone 2050 CD

1. Exit any programs that are running.
2. Disable any anti-virus programs that are running.
3. Insert the IP Softphone 2050 CD into the CD-ROM drive of your computer. If the install wizard starts, exit from the install wizard.
4. Use Windows Explorer to navigate to the QoS directory on the CD.
5. Double-click on the **Setup** icon in this directory.
6. Follow the instructions on the display to complete the installation.

The Nortel IP Softphone 2050 QoS Service is configured to start automatically as a Windows service, so no further configuration is required for it.

Server configuration

After you have finished installing the IP Softphone 2050, you must configure the server to recognize and accept calls to and from the IP Softphone 2050. For information about how to configure your server, refer to the documentation that came with your server.

IP Softphone 2050 Configuration Utility

You configure the IP Softphone 2050 using the settings dialog box.

To start the configuration utility using the Control Panel

- Click **Start > Control Panel > IP Softphone 2050.**

To start the configuration utility using the Start menu

- Click the **Start** > **All Programs** > **Nortel > IP Softphone 2050** > **IP Softphone 2050 Settings**.

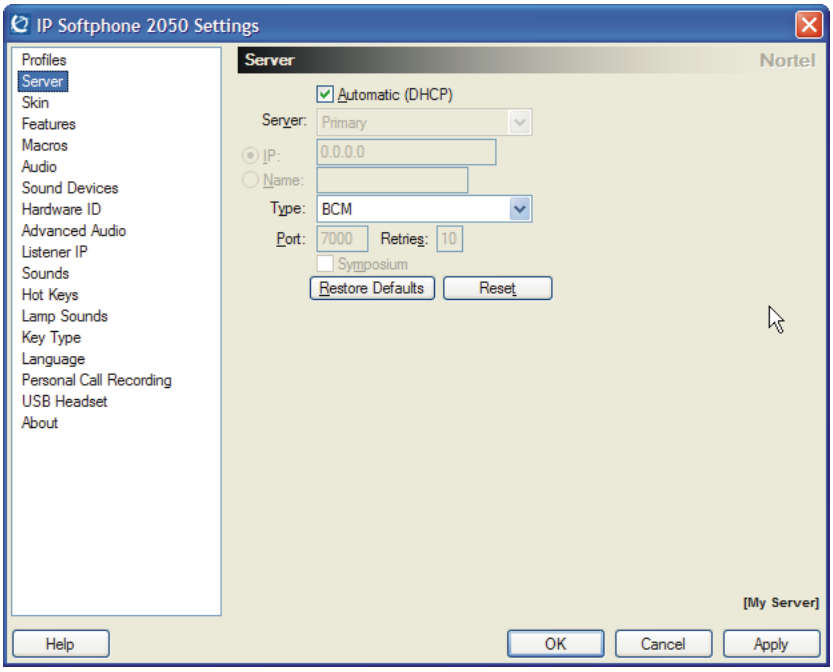
To start the configuration utility within the application

- Click **File > Settings.**

The IP Softphone 2050 Settings utility has tabs for

- Server
- Sound Devices
- USB Headset Adapter
- Additional tabs for system administrators

Server



If your site uses DHCP:

1 Select the **Automatic (DHCP)** option.

Using DHCP is the default method of locating the call server.
If DHCP is used, no further configuration is required.

Note: To use DHCP, you need a DHCP server with call server IP address values programmed as per the IP 2004.

Note: Using DHCP may not be appropriate for mobile users. These users commonly want to connect to their office communications server rather than the local office server.

If you are not using DHCP:

1 Clear the **Automatic (DHCP)** option.

2 Select the Server type you wish to configure: **Primary**, **Secondary** or **Application.**

3 Enter the **IP** address of the server.
Or
Enter the **Name** of the server.
If you do not know the server name or IP address and port number, ask your call server administrator.

4 Select the Server Type: **Meridian 1**, **CS 1000**, **BCM**, or **CS1000M**.
For example, select **BCM** if you are using a Business Communications Manager system.

5 Enter the **Port** number.

6 Enter the number of **Retries**.
If the initial connection fails, the 2050 will attempt to re-connect the number of times indicated by Retries

7 Select the **Symposium** check box to cause the 2050 to report itself as off-hook to the call server.
For Symposium Call Center users, the 2050 must indicate that it is off hook to be recognized as a Symposium agent device. ACD agents also must select the Symposium option

Sound Devices

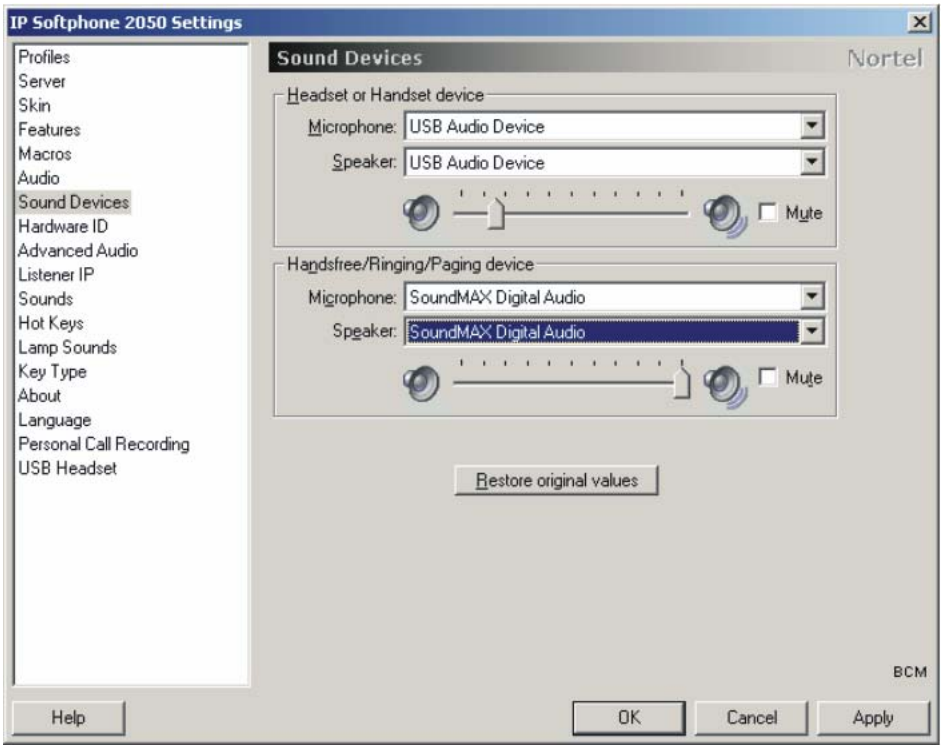


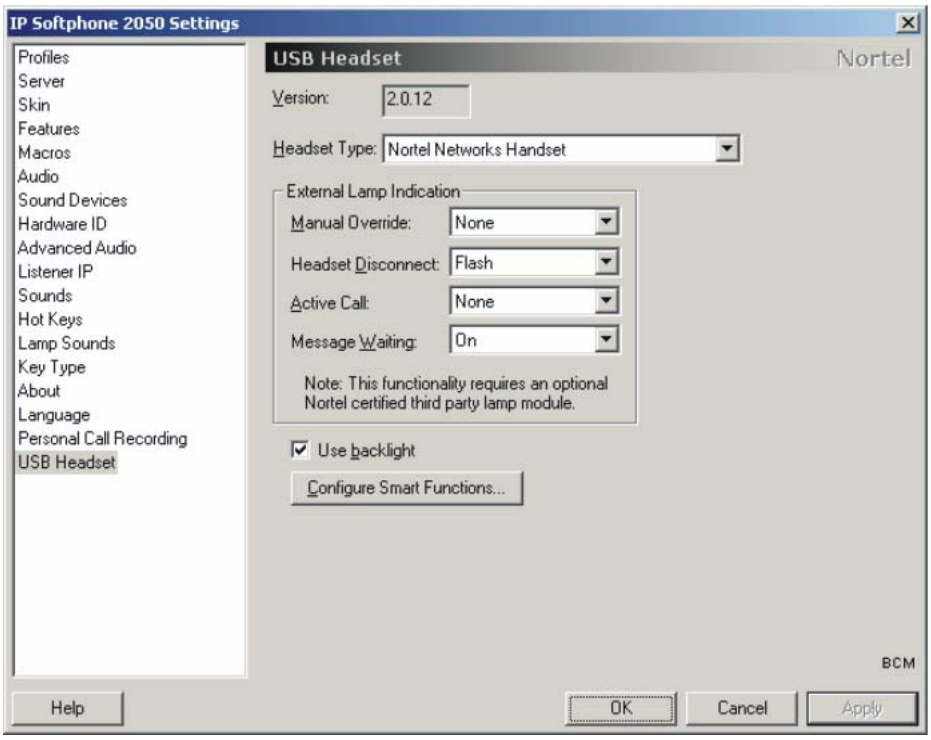
Table 1 Select Sound Devices

Attribute	Description
Headset or Handset Microphone	Select the microphone used for making calls. Select **USB Audio Device**.
Headset or Handset Speaker	Select the speaker used for making calls. Select **USB Audio Device**.

Table 1 Select Sound Devices (Continued)

Attribute	Description
Handsfree/ Paging/Ringing Microphone	This is the microphone which is used when the handsfree device is selected in the interface. This selection normally should match the Nortel USB Audio Kit which enumerates as a USB Audio Device
Handsfree/ Paging/Ringing Speaker	This is the speaker which is used when the handset free device is selected in the interface. It is also the speaker which is used to play ring tone and the device pages are directed. This selection normally should match the PC's speakers. This allows ring tone and pages to be heard over the PC speakers rather than on the headset

USB Headset Adapter



Use this screen to configure your USB Headset Adapter.

Note: You must select the Headset Type to ensure optimal headset performance.

Table 2 USB Headset Adapter

Attribute	Description
Version	Shows the version of the USB Headset Adapter. **Note**: If the USB Headset Adapter is not recognized or has a version number lower than 2.0, the other features in this table are grayed out and unavailable.

Table 2 USB Headset Adapter (Continued)

Attribute	Description
Headset Type	Select the type of headset that you have connected to the USB Headset Adapter. Due to differences in headset construction, you may not get optimal audio performance when using a headset that does not appear on the list. For optimal performance, always use one of the headsets that appears on the Headset Type drop list.
Manual Override	Select one of the available cadences to enable the Manual Override feature. For a description of the available cadences, refer to Table 3 on page 25. When Manual Override is enabled, you can manually turn on the external lamp using the IP Softphone 2050 Smart Functions button on the USB Headset Adapter. For more information about the IP Softphone 2050 Smart Functions button, refer to the IP Softphone 2050 Help. Select **None** to disable the Manual Override feature.
Headset Disconnect	Select one of the available cadences if you want the external lamp to indicate when the headset is disconnected from the USB Headset Adapter. For a description of the available cadences, refer to Table 3 on page 25. Select **None** if you do not want the external lamp to indicate when the headset is disconnected.
Active Call	Select one of the available cadences if you want the external lamp to indicate when there is an active call on the IP Softphone 2050. For a description of the available cadences, refer to Table 3 on page 25. If the USB Headset Adapter is selected as the Ringing Speaker, the external lamp also indicates when there is a call ringing on the IP Softphone 2050. For information about setting the ringing device, refer to "Sound Devices" on page 22. Select **None** if you do not want the external lamp to indicate when there is an active call. **Note**: If you select a cadence for Active Call, the external lamp also turns on or flashes when another application uses the audio channel for the USB Headset Adapter.
Message Waiting	Select one of the available cadences if you want the external lamp to indicate when the IP Softphone 2050 message waiting light is on. For a description of the available cadences, refer to Table 3 on page 25. The IP Softphone 2050 message waiting light normally indicates when there is a message waiting. However, most systems also turn on or flash the message waiting light when the IP Softphone 2050 is ringing. Select **None** if you do not want the external lamp to indicate when the message waiting light is on.
Use backlight	Select this check box to enable the backlight for the USB Headset Adapter buttons. Clear this check box to disable the backlight for the USB Headset Adapter buttons. **Note**: When you enable the backlight, you can use the state of the backlight to quickly determine if the IP Softphone 2050 is running. When the backlight is on, the IP Softphone 2050 is running. When the backlight is off, the IP Softphone 2050 is not running.
Configure Smart Functions	Click this button to set the options that are available when you press the Smart Functions button on the USB Headset Adapter. For more information about the Smart Functions button, refer to the IP Softphone 2050 Help.

Note: The External Lamp is an optional component. It normally is not included with the USB Headset Adapter, and must be ordered separately. The external lamp also is known as an "In-Use Indicator" lamp.

If more than one External Lamp Indication option is enabled and active, the external lamp shows the cadence of the option with highest precedence. The precedence of the External Lamp Indication options from highest to lowest is: Manual Override, Headset Disconnect, Active Call, and then Message Waiting. For example, if there is a message waiting and an active call, the cadence for Active Call is used for the external lamp.

Table 3 External Lamp Cadences

Cadence	Description
On	The external lamp is on-solid.
Flash	The external lamp cycles at the following rate: 0.5 seconds on; 0.5 seconds off.
Flicker	The external lamp cycles at the following rate: 1.625 seconds on; 0.375 seconds off.
Blink	The external lamp cycles at the following rate: 0.5 seconds on; 1.5 seconds off.

Hardware ID

Note: This screen is intended for expert users only.

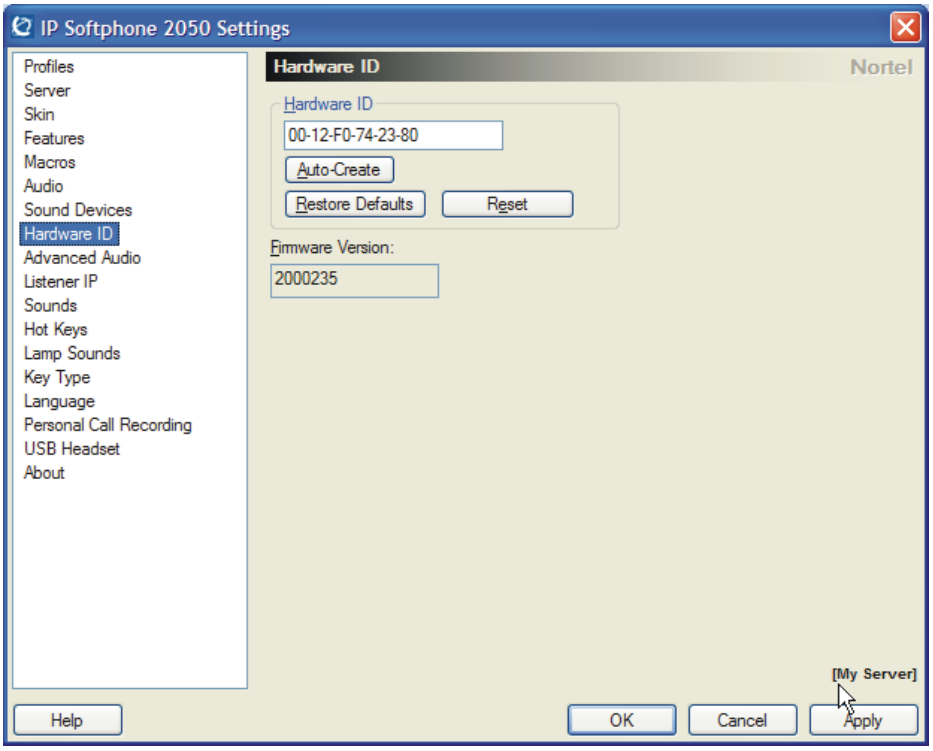
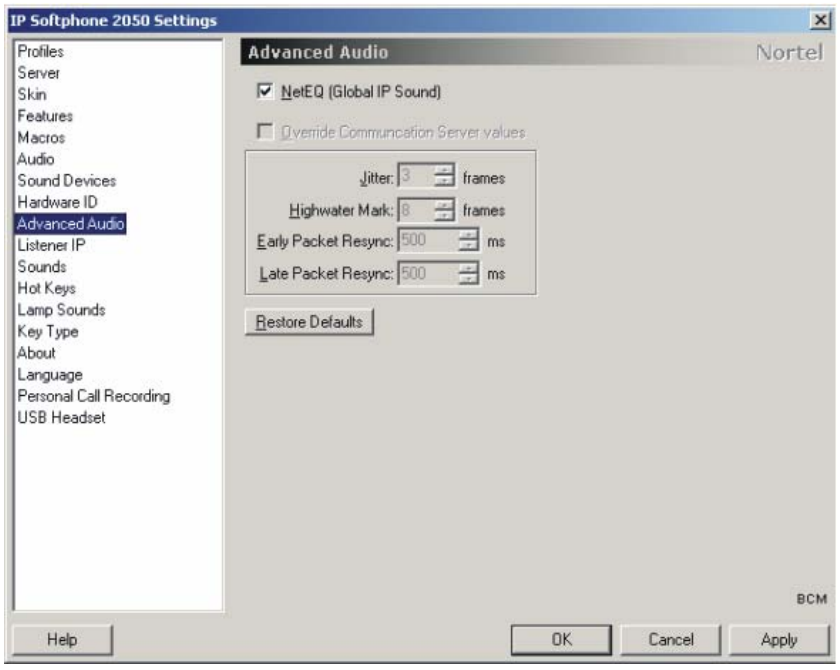


Table 4 Hardware ID

Attribute	Description
Hardware ID	Do not change the information in the first or last box in the Hardware ID field. The middle box contains the MAC address for the Ethernet card installed in your computer. The IP Softphone 2050 uses the MAC address of the computer as its hardware ID. You may have to change this value if there is more than one Ethernet card in the PC or if the PC is using an extranet client that hides the true MAC address. For example, Nortel Contivity Extranet Switch uses a single MAC address for all clients. This can potentially cause connection issues with your communications server.
Auto-Create	Changes the MAC address that appears in the middle Hardware ID box. If your computer has more than one Ethernet card (and, therefore, more than one MAC address), click the **Auto-Create** button to cycle through the set of MAC addresses on your computer.
Firmware Version	Shows the software version of the IP Softphone 2050.

Advanced Audio

Note: This screen is intended for expert users only.



You can use this screen to override the communications server defined values.

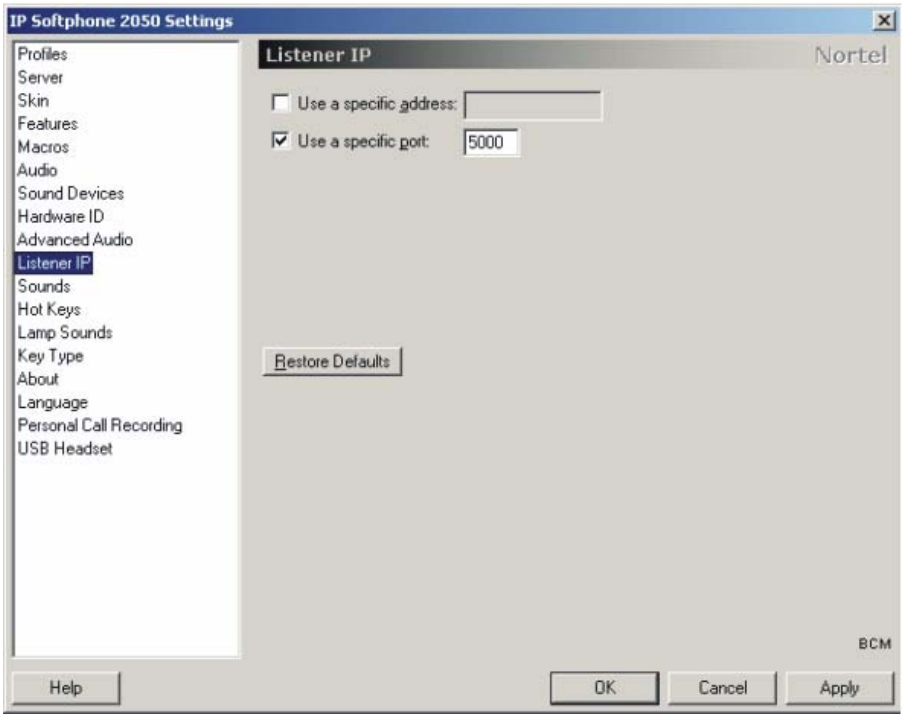
Note: Changing the values on this screen should be considered a last resort if audio quality issues are encountered.

Table 5 Advanced Audio

Attribute	Description
Use Communication Server values	The IP Softphone 2050 uses the values assigned by the communications server. This is the normal mode of operation.
Override Communication Server Values	In very rare cases where audio quality is adversely affected by network performance for a few users, these values can achieve a workable balance of quality.

Listener IP

Note: This screen is intended for expert users only.

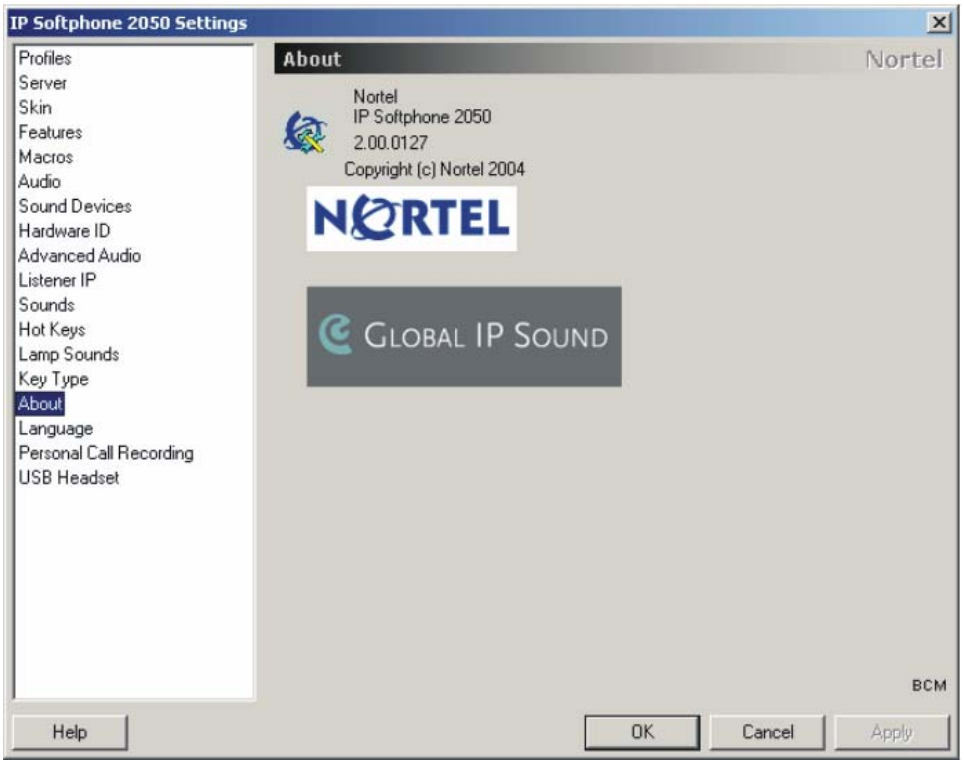


This screen identifies the IP addresses and ports where the IP Softphone 2050 is listening for UNIStim traffic. You can use this screen to override the port assignments when there is a conflicting application on the computer.

Table 6 Listener IP

Attribute	Description
Use specific address	Using a specific address can be useful in cases where there is more than one Ethernet card, and an application conflict exists.
Port	This value can require adjustment if another application on the computer is using the same port. The two applications can co-exist by moving the port or IP address to which the IP Softphone 2050 is listening.

About



This screen identifies the version of the IP Softphone 2050 Configuration Utility. This always matches the version of the IP Softphone 2050 application.

Accessing the IP Softphone 2050 help

After you have successfully installed the IP Softphone 2050, you can access the IP Softphone 2050 help system. This help system provides detailed information about how to use and configure the IP Softphone 2050.

To access the IP Softphone 2050 help from the Primary interface (Enhanced):

1. Start the IP Softphone 2050.
2. On the menubar, click **Help**.
3. Click **Contents**.
   The IP Softphone 2050 help window appears.

Registering the IP Softphone 2050 on BCM50 2.0

If you are using a BCM50 2.0 as your communications server, the first time you start the IP Softphone 2050, you must register with the BCM50 2.0 system.

To register your IP Softphone 2050 on a BCM50 2.0 system

1. Start the IP Softphone 2050.
2. If a password prompt appears on the IP Softphone 2050 display, enter the registration password and press the **OK** soft key.
   If you do not know the registration password, contact your system administrator.
3. If a DN prompt appears on the IP Softphone 2050 display, enter the DN you want assigned to this telephone, and press the **OK** soft key.

After the registration is complete, you do not need to go through the registration steps described above, unless you deregister the terminal.

If the IP Softphone 2050 cannot register, or cannot find the communications server, refer to the *Telephony Device Installation Guide* for more information about registering and deregistering IP telephones.

Troubleshooting

Application fails to install

Symptom: During installation the following error message appears:

- Error 1931: The Windows Installer service cannot update the system file <filename>.

Description: You are trying to install IP Softphone 2050 on an outdated version of the operating system.

Action: To fix the problem, you can upgrade your operating system. Check the Hardware and Software Requirements section of this document for the information on supported operating system releases.

Chapter 4
IP Softphone 2050 interfaces

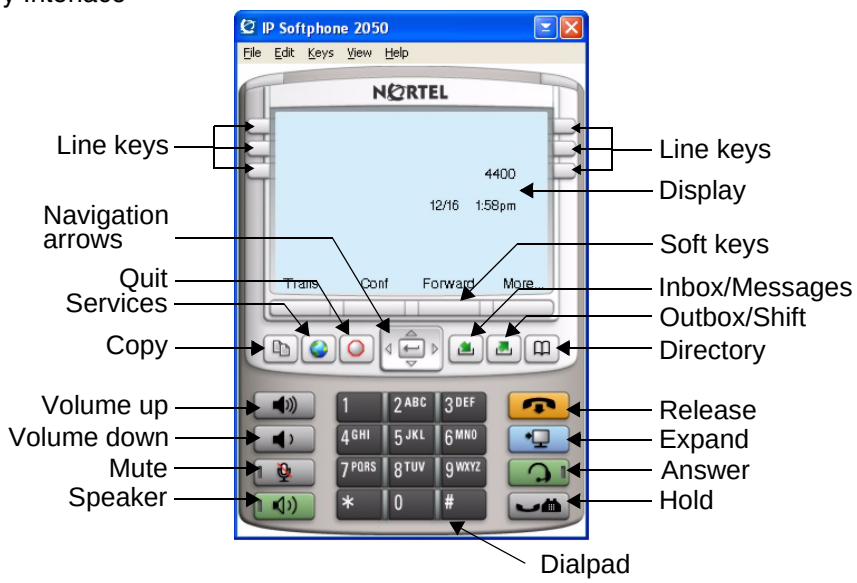
This chapter describes the following IP Softphone 2050 interfaces:

- Primary User Interface, which provides access to features and line appearances
- System Tray Interface, which provides operation of the IP Softphone 2050 from the Windows system tray
- Directory Interface, which offers access to internal and external databases (directory, personal address book, call logbook, quick dial lists)

Primary User Interface

The IP Softphone 2050 Primary User Interface provides call control and access to other network services. The display area and application buttons are mapped directly from the IP 2004 Internet Telephone. Therefore, knowledge of one interface is directly portable to the other, reducing training costs.

Figure 1 Primary Interface



Within the Primary User Interface, the computer keyboard provides hotkeys for one-press access to common features:

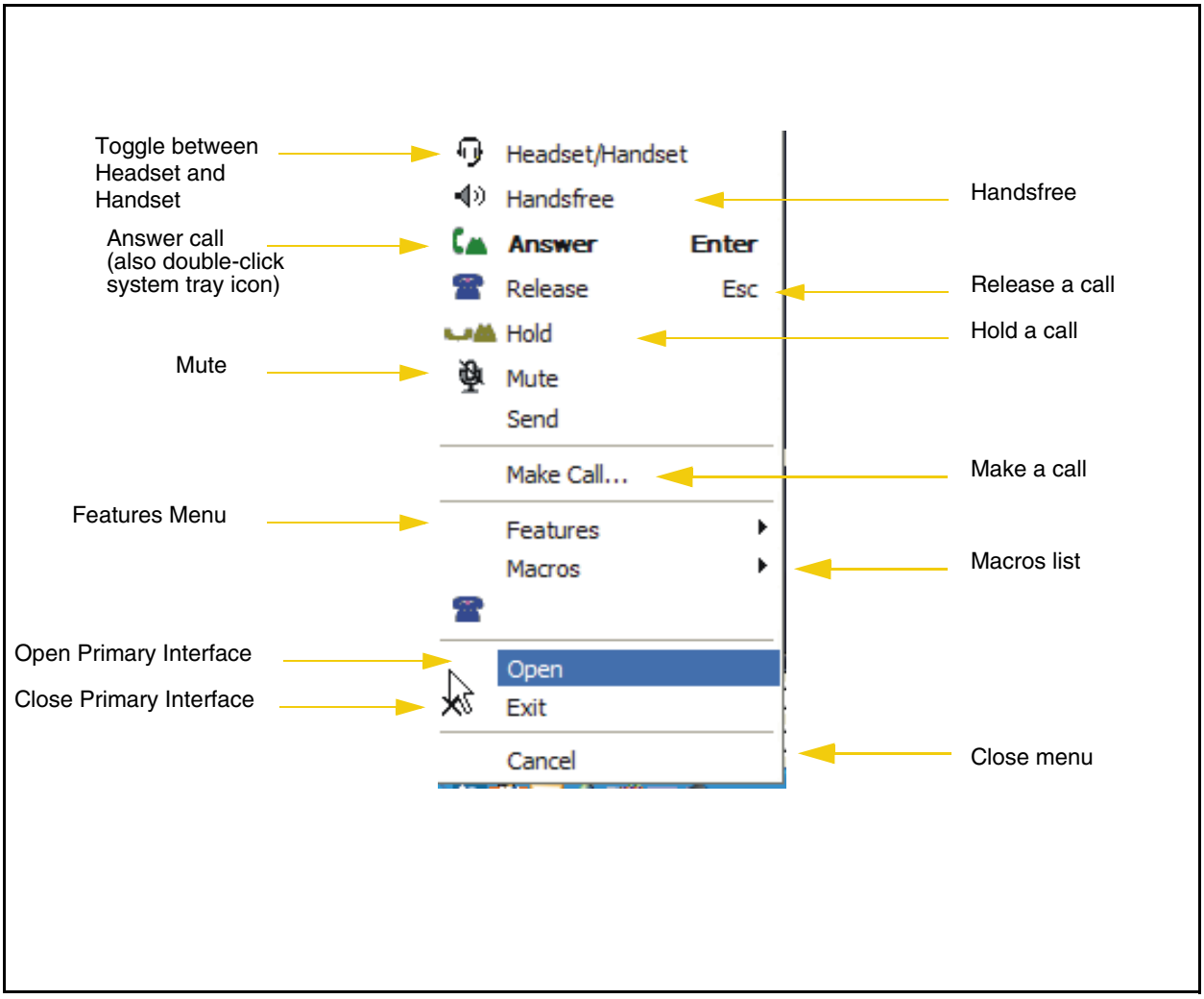
- answer (Enter)
- release (F12)
- hold (F5)
- softkeys/interactive keys (F1-F4)
- alphabetic keys map to numbers as per IP 2004 dialpad mapping

- arrow keys map to navigation keys
- Alt-V paste/inserts data to the interface (For example, you can copy a phone number from Outlook, and paste it into the IP Softphone 2050 interface.)

System Tray Interface

Many of the IP Softphone 2050 features are available from the System Tray Interface. This interface enables you to operate the IP Softphone 2050 without interrupting your workflow. For example, you can answer an incoming call from the system tray without launching the Primary User Interface.

Figure 2 System Tray Interface



Easy access to the Directory, Inbox, and Services is provided by fly-out menus.

Local Directory Interface

The IP Softphone 2050 Directory Interface allows the user to maintain a personal directory for placing calls. The directory can be stored with the IP Softphone 2050 itself (by default in a local file named Directory.mdb), or linked to external directories. Linking to LDAP, Outlook, Windows Address Book (WAB), and ACT! directory types is supported.

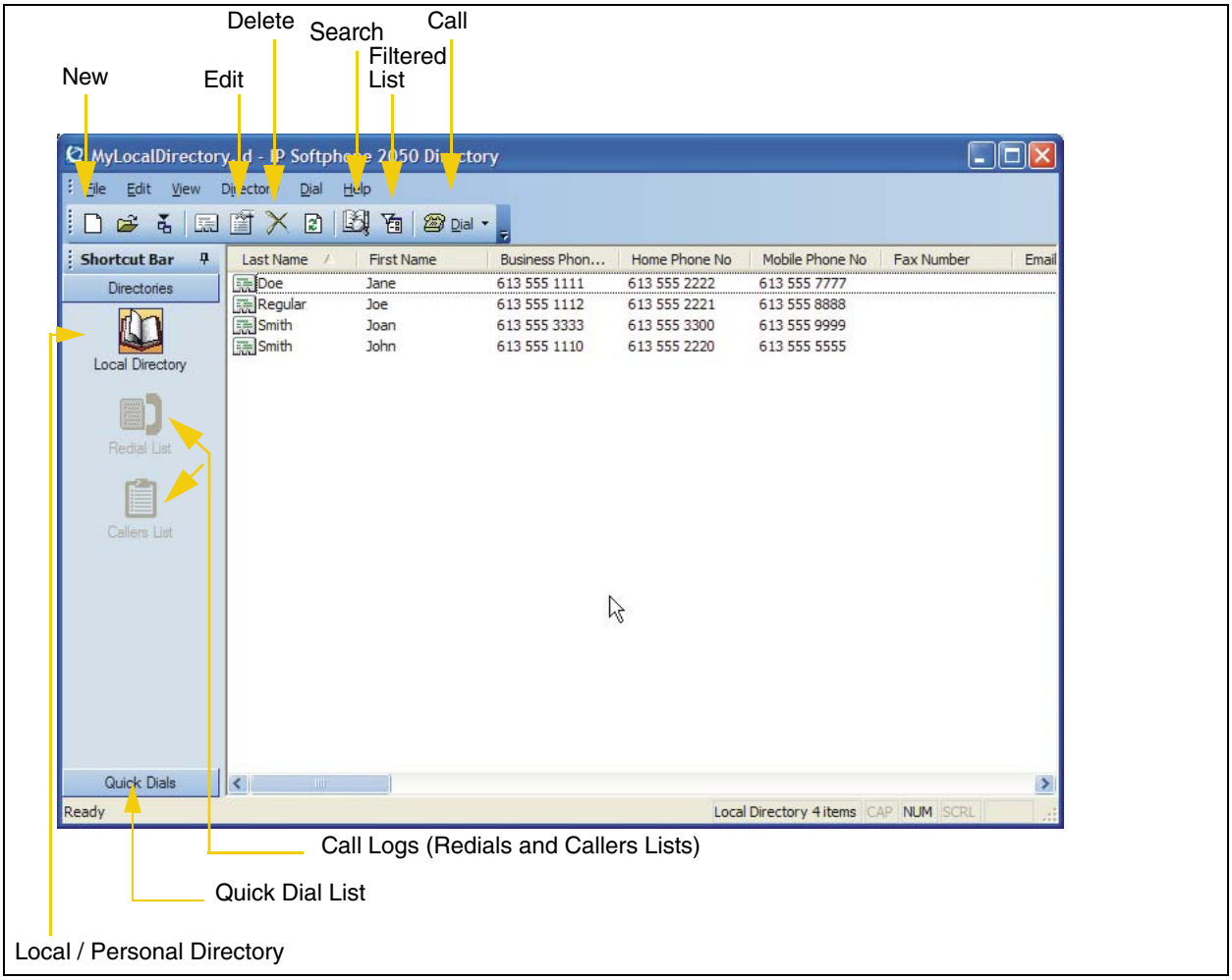
Users can create, modify, and delete entries in the local directory, and can copy entries from external directories, the redial list and the caller lists into the local directory (select an entry, right-click and select “Add to Local Directory …”).

Directory lists can be filtered in simple or complex ways to show, for example, people whose last name starts with “B” and who work for “Nortel”.

Ten items from each of the Quick Dial list, Caller list ad Redial list also viewable from the Primary User Interface and the System Tray Interface.

The Quick Dial list is a shortcut to entries stored elsewhere (in the local directory or in an external directory). Callers list and Redial list are stored as lists within the directory storage file of the IP Softphone 2050. Some communications servers do not provide caller identification to the IP Softphone 2050.

Figure 3 Directory interface



Calls can be made by selecting a contact entry, and then:

- right-clicking and selecting which of the contact numbers to call.

  or

- pressing the call function at the top of the directory window.

Figure 4 Directory interface - make a call

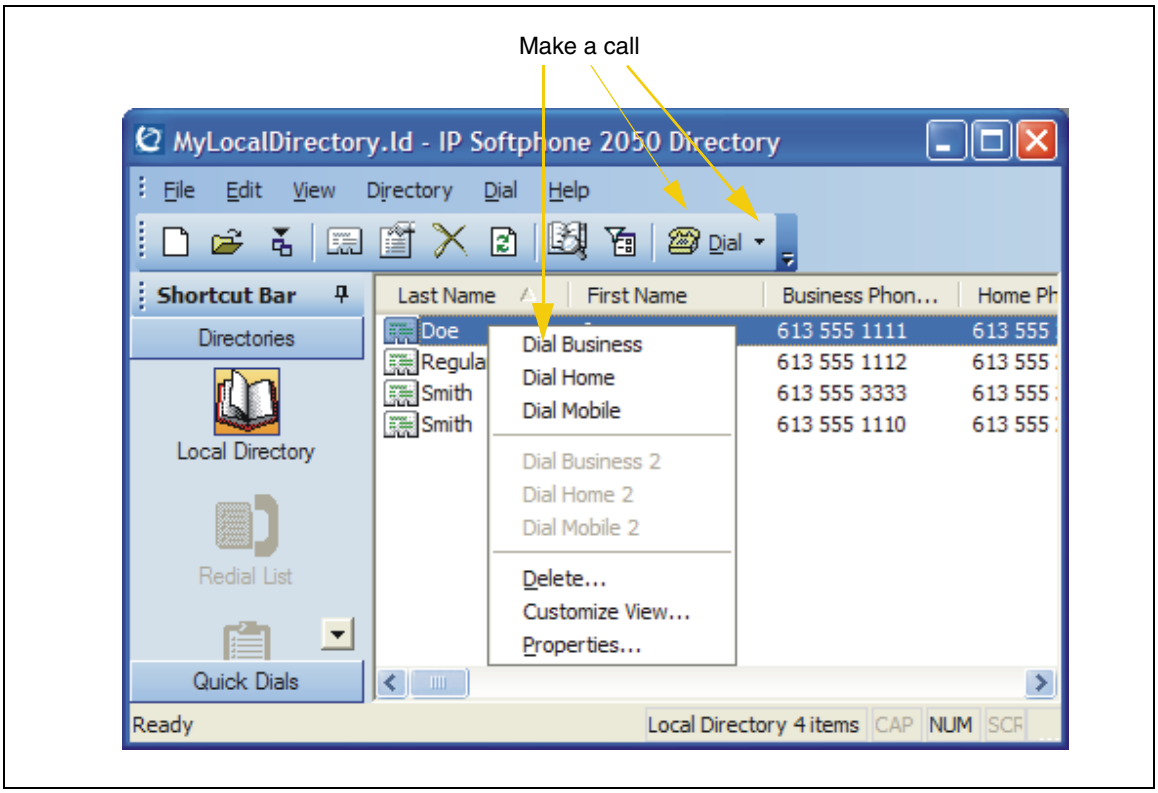


Figure 5 Directory interface - adding new groups